

# SOCIAL SERVICE FOSTERS RESEARCH-ORIENTED LEARNING

**Marco Ferruzca<sup>1,2</sup>**

*<sup>1</sup>Universidad Autónoma Metropolitana (MEXICO)*

*mvfn@correo.azc.uam.mx*

*<sup>2</sup>Laurea University of Applied Sciences (FINLAND)*

*Visiting scholar*

*marco.ferruzca@laurea.fi*

## Abstract

In Mexico, social service is a mandatory activity performed by undergraduate students as a requisite for graduation. According to national regulations, the social service is managed by higher education institutions. Through social service (also understood as a service-learning experience), students can apply the knowledge they have acquired to produce a benefit to both society and the state. Social service should be oriented to solving relevant social problems about health, housing, social re-adaptation, immigration, technological development, education etcetera. For higher education institutions, this practice can be embedded in other academic activities like teaching, research and the preservation of culture. An example of a research project supported by social service activities is presented by the author in order to reflect how this particular service-learning experience can foster research-oriented learning. More efforts to analyse this possible relationship are needed. This material will be interesting for people studying different ways to approach this particular mode of learning.

Keywords: social service, research-oriented learning, service-learning, community service

## 1 INTRODUCTION

As the title of this document advocates, the aim of this manuscript is to suggest that social service – understood as a service-learning (SEL) experience – can foster research-oriented learning (ROL). According to the German Ministry for Education, ROL is a concept of learning which adopts critical thinking and problem-oriented, creative and autonomous work. ROL connects research and teaching (Center for key competences and research-oriented learning, 2006-2016). Students expand their knowledge, become familiar with research, increase their network of contacts for future collaborations, work with others disciplines and strengthen their professional identity (Ruhr-Universität Bochum, 2016).

Social service in Mexican institutions of higher education is a mandatory activity for students' graduation. Through it, they can improve their education, receive professional training and produce a benefit to society and the state. The aim of social service is to contribute to solving relevant social problems, as we will describe hereafter.

According to Furco (1994), schools have tried to create learning experiences so students can engage in social issues for communities through service. He identified three types of service programme: community service, SEL and service-based internship programmes. The modalities can be characterized depending on the amount of emphasis on service and learning, the intended beneficiary, the intended educational purpose, integration in curricula and the

nature of service activity. For the purpose of this paper, the author only describes the SEL type of programme because it is closest related to social service practice.

In SEL, there are two beneficiaries: the recipient and the provider. Its primary focus is to strengthen service and learning activities. It is based in academic and civic collaboration. It is integrated in curricula and is based on academic discipline.

This is the background for the author presenting the case of social service in Mexican HEIs as a medium for fostering ROL. In this paper, an overview of the concept of social service is introduced. Then, specifications of the social service practice in a public university in Mexico City are reviewed. An example of a recent research project with embedded social services activities is offered in order to draft some ideas about why this SEL experience can be useful for encouraging ROL too.

Finally, this work will be interesting for people in gaining knowledge about the SEL experience based on cases from abroad.

## **2 THE CONCEPT OF SOCIAL SERVICE**

The history of social service can be traced to the first decade of the past century when Justo Sierra, one of the most important actors of Mexican modern history, emphasized that higher education should pay attention to social needs and thus teaching and research should contribute to national development (Robles Barcena, Celis Barragan, Navarrete Garcia, Rossi, Gilardi Gonzalez, & Barragan Perez, 2012). Later on, the idea of institutionalizing social service and making it a mandatory activity was strengthened during the 1920s. The aim was to create social awareness in undergraduate students. In the mean time, there were some efforts to try to establish social service legislation (García Ancira, Castillo Elizondo, & Salinas Reyna, 2016).

Finally, in November 1942, Article 5 of the Mexican constitution was modified, establishing the mandatory character of social service. According to both this article and Article 52, in its regulatory law, social service in Mexican HEIs is understood as a theoretical and practical set of mandatory temporary activities performed by students as a prerequisite for their professional graduation which contributes to their education in the interests of society and the state (ANUIES, 2012).

After this legislation, a lot of effort has been put into improving social service in Mexico, and it has been subject to discussion by important educational organizations in the country. One of them is ANUIES (a Spanish acronym to denominate the National Association of Universities and Higher Education Institutes), a non-governmental organization founded in 1950 which represents the interests of private and public HEIs. It serves as a communication platform with the government.

For ANUIES, social service impacts on social development. It is a key instrument for supporting higher education's advance, which also provides elements for planning and orienting teaching and research according to social challenges (ANUIES, 1989).

HEI's have to create the organizational structure to manage social service. In this way, HEIs can play the role of the catalysers of social change while at the same time gaining social recognition.

Frequently, social service work is understood as a professional practice, however it is different because the latter is more oriented towards supporting the development of students in their professional field. Social service work is more concerned with social challenges and thus it

demands more commitment. It has a duration of 480 hours, which can be distributed in over six months.

One of the current challenges of social service is improving the undergraduate students' vision about it so that they would not understand it as merely a mandatory activity but also as an opportunity to establish a true compromise with society which can lead to establishing collaboration among students, faculty, community, productive sectors and so on (Cano Castellanos, 2004).

The United Nations states that social service is an essential medium for fostering the development of nations. The United Nations Educational, Scientific and Cultural Organization, (1998) encourage the view that social service can increase the common wellbeing of society by eradicating poverty, intolerance, violence, environmental changes, health problems etcetera.

Some of the problems in achieving the objectives of social service have been documented in several studies (Ruíz Méndez, 2011; ANUIES, 2012; Navarrete Ramírez, Barrera Bustillo, & Martín Pavón, 2010; Ledesma, Mungaray, & Ocegueda, 2008):

- Not all HEIs have created the organizational structure demanded by a service activity.
- There is a lack of social services programmes, created by the government.
- There is a lack of resources provided by the government.
- There is a lack of social values in younger generations.
- Social service activities are without social projection and are not related to students' profession.

### **3 SOCIAL SERVICE AT UNIVERSIDAD AUTONOMA METROPOLITANA**

#### **3.1 Background**

The Universidad Autónoma Metropolitana (UAM) is a Mexican public university created in 1973 with the aim of attending to the demand of students in the metropolitan area of Mexico City to enrol in a HEI.

The UAM is aware of being at the service of society and thus it has oriented teaching, research and the dissemination of culture towards solving problems that affect large sectors of society. It fosters joining professional training with innovative forms of social service that put students in touch with national needs (Universidad Autónoma Metropolitana, 2016).

In relation to social service regulation at the UAM, there are some institutional policies which establish that it should be incorporated to programmes and curricula, research projects and cultural activities (Universidad Autónoma Metropolitana, 2015).

In this context, teachers must create and advise about social service activities because it is part of the function that they are expected to do beyond teaching, researching and preserving culture.

There is a rich history of social service activity at the UAM since its foundation, and maybe one of the most interesting things to underline was the creation of Social Service Regional Centres that were located in three different cities to promote projects and activities with several communities which required the support of the university. However, for several reasons they disappeared (Angulo Alvarez, Avila Sandoval, Cardenas Valdez, & Zepeda Tiburcio, 2006). Nowadays, social service at the UAM has some challenges to solve but, even so, there are very interesting social services initiatives which reflect the spirit of social responsibility and commitment to society. For example:

- PIDEСТИ (an interdisciplinary programme to foster sustainability in the Tuxtla and Ixucán de los Reyes in Veracruz). This programme has several impacts regarding environment management, education management, knowledge management and social participation. PIDEСТИ integrates research with SEL and the connection of the UAM with communities in Veracruz. The aim is to improve the environmental and socio-economical conditions of different regions in the state of Veracruz. This project is lead by professor Irma Juárez González and it has received the support of different actors: the Government of Veracruz, the Secretariat of Environment, Natural Resources and Fisheries, the United Nations Educational, Scientific and Cultural Organization (UNESCO) and several communities (Observatorio Mexicano de Responsabilidad Social Universitaria, 2014).

### **3.2 A descriptive case of a social service project at the UAM**

For the purpose of this paper, an example of a recent research project where the author collaborated with other peers will be shortly described. The aim is to present some ideas about how the social service practice embedded in research activities can contribute to helping students experience research in their early academic preparation and enhance their learning.

#### *3.2.1 The UTU-UAM project*

In order to promote cooperation between Mexico and Uruguay, both governments signed an agreement in 2009 to finance projects oriented to developing common areas identified as priorities, for example social development, agricultural development, science, technology and innovation. Selected projects had to bring direct benefits to the population through good practices and knowledge transfer between the entities involved.

The case presented here is based on the cooperation project “Design, technology and innovation: exchange UTU-UAM” (UTU-UAM) developed in 2014 jointly by the UAM and the Universidad del Trabajo del Uruguay (UTU), located in Montevideo (Ferruzca & Martínez, 2014). The general objective of the project was to develop cooperative ties between the two countries through human capacity development and knowledge sharing to strengthen the institutions’ capacity building regarding teaching, research, the preservation and dissemination of culture, and the promotion of entrepreneurship. In particular, the project aimed to exchange design knowledge in order to foster innovation by developing new products based on Uruguayan gems (agate and amethyst).

Gems in Uruguay are mostly sold abroad with low or no added value. They are concentrated mainly in the city of Artigas, in the north of Uruguay. The stone industry and the design of new products in Artigas are reduced. The Uruguayan gems-based handcrafts market is limited and do not take advantage of design knowledge.

Artigas experiences some social challenges, most of the young people go to live to Montevideo for better opportunities. There are no HEIs there. In this context, in 2013 the UTU design department incorporated design in their education programme, considering that it can be useful to improve crafts education through producing students capable of fostering design-driven innovation.

One of the first educational projects launched by the UTU was the three-year technical education programme, Programme in Gem Products (PGP). The main objective of this programme is to prepare graduates with a high capacity to develop innovative gems products and to create new business and new jobs. Additionally, a recent arrangement with a professional

design school in Uruguay will allow students to complement their education with a fourth year of studies and obtain a professional degree.

The above explanation has been necessary because one of the emerging challenges was the need to sensitize different actors (craftsmen, community, miners etc.) about the potential of design and to strengthen the education programme, the PGP.

Figure 1 here

For the UAM, participating in a project like this represents the opportunity to a) share its experience about design research and teaching, and b) collaborate with the UTU in solving a specific social problem, which can also be found in Mexico. Besides, the cooperation between both universities fosters the mobility of students and staff.

The UTU and UAM organized several activities to improve the education experience of both institutions, to offer a SEL experience to the community and to foster the incorporation of design as a tool to add value to gem products. These activities can be characterized as an effort to provide a community service to address the above issues and academic learning (Furco, 1994). The activities consisted of presenting workshops, seminars and fieldwork. The contents were about design methodologies, design thinking, innovation and creativity, and about gem technology. This initiative has been registered as a research project lead by a group of teachers at the UAM.

Figure 2 here

### 3.2.2 *The SEL experience in practice*

A bi-cultural design team – composed of sixteen teachers and students from Mexico and Uruguay – was set up to launch the project. In the case of Mexico, the teachers and students were members of the School of Sciences & Arts for Design at the UAM, housed at Campus Azcapotzalco, while the rest of the team members were:

- teachers in the design department at the UTU
- teachers and students from the PGP technical education programme offered by the Schools of Arts & Crafts “Pedro Figari” in Artigas and in Montevideo
- teachers and students from the EUCD (University School Design Centre) in Montevideo.

Within the team, in the beginning there were only two students from the graphic design programme at the UAM doing their social service. Later, three more students from the same programme were included. Three students from Uruguay also participated in the main team.

Additionally, other organizations supported the project: the Innovation and Design Promoting Council in Jalisco, the Ministry of Education and Culture in Montevideo, and the School of Design (ISDI) in la Habana. The economical resources for the project were directly managed by the United Nations Development Programme through the AMEXCID (the Mexican Agency for International Development Cooperation) and the AUC (the Uruguayan International Cooperation Agency).

The main SEL experience was held in Artigas. Later on, some activities were also developed in Guadalajara (Mexico) and la Habana (Cuba) with different craftsmen communities (which face similar problems but with different crafts materials). Table 2 presents more details about the SEL activities.

Figure 3 Here.

Table 2. Details from the SEL experience

<b>Location</b>	<b># beneficiaries</b>	<b>Profile</b>	<b>Concerned impact</b>	<b>Students role doing their social service</b>
Artigas	50	Students from PGP Design students from the other participant institutions Craftsmen The community	Mobility Education Training Social responsibility awareness	Participation in workshops and seminars Leading the communication aspects of the project (images, documents, video & web communication)
Guadalajara	35	Craftsmen from Design and Craft Innovation Centre.	Training Mobility Social responsibility awareness	Leading the communication aspects of the project (images, documents, video & web communication)
La Habana	15	Design students Craftsmen specialized in ceramics	Education Training Mobility	Participation in workshops and seminars Leading the communication aspects of the project (images, documents, video & web communication)

### 3.3 A description of the outputs and outcomes

Based on previous work (Ferruzca Navarro & Martinez Mota, 2016), some ideas about the outputs and outcomes generated through this SEL experience are presented in table 3. The six dimensions proposed by Navarrete, Barrera, and Martín Pavón (2010) to measure social service quality have been adapted to make this reflection.

Table 3. The outputs and outcomes of the SEL experience

<b>Dimension</b>	<b>Output</b>	<b>Outcome</b>
------------------	---------------	----------------

<p>Social responsibility (understood as the student's commitment to society)</p>	<p>Improved capacity building at the Schools of Arts &amp; Crafts "Pedro Figari" and collaboration with craftsmen to design new products.</p> <p>Improved awareness of social service benefits.</p> <p>Students experienced the social side of learning.</p> <p>Research groups promoted SEL experiences.</p>	<p>New opportunities to increase the number of students participating in the project.</p> <p>New possibilities to launch SEL experiences in Latin America.</p> <p>More experience of embedding social service in ROL.</p> <p>The UAM and UTU increase their commitment to supporting social needs.</p>
<p>Professional orientation (the relationship between students' knowledge and the developed activities)</p>	<p>Students in the social service programme applied their knowledge of graphic design to create visual elements for the project.</p> <p>Through collaborating directly with communities, students had a better understanding of design's capacities.</p> <p>Students have a better understanding of research because they participated in the whole process.</p>	<p>The students become better professionals.</p> <p>Students are more interested in research activities.</p>
<p>Project congruence and supervision (the match between the project's aim and the developed activities)</p>	<p>The proposed plan for the project was respected. Periodical reports were sent to the AMEXCID and AUCI so that progress could be monitored.</p>	<p>New opportunities for funding because of good performance.</p>
<p>Project performance (criteria for measuring student activities during social service)</p>	<p>The materials elaborated on by the students and there is a general assessment of the project.</p>	<p>A set of instruments to assess the SEL experience.</p>
<p>Project beneficiaries (beneficiaries of the social service)</p>	<p>115 persons directly benefitted in three communities. Also, more than 100 persons participated in diffusion activities.</p> <p>The participants better understand the role of HEIs as catalysers of social change.</p>	<p>More teachers are involved in social service activities with a real impact on society.</p> <p>More resources are provided for HEIs to foster social change.</p>

<p>Project results (the impact of the project on beneficiaries' needs)</p>	<p>The education project for Artigas, conducted by the UTU, achieved its institutional goals.</p> <p>The project opened new possibilities for collaborating with other research groups in Latin America: in Colombia, Ecuador and Cuba.</p> <p>A new project was developed to implement a design-driven innovation programme for sustainable development in Latin America.</p> <p>Students, teachers, designers, craftsmen and the community worked collaboratively to create new concepts of products and services. They made a consensus on the best solutions.</p> <p>Thirteen prototypes of new products were developed.</p> <p>Craftsmen from Artigas, Guadalajara and la Habana have a better understanding of how design can improve their work.</p> <p>The academic mobility of teachers and students was promoted.</p> <p>Scientific papers and posters were used to diffuse the research results.</p>	<p>More students graduated in Artigas.</p> <p>Permanent mobility between Latin American countries.</p> <p>The widespread use of design knowledge by society.</p> <p>The internationalization of universities.</p> <p>Permanent international research collaboration.</p>
--	---	--

### 3.4 Analysis

The UTU-UAM project started around June 2014 and its implementation in in January 2015. A team was configured to develop the project. The project was registered as a research activity following criteria established at the UAM. Also, a social service plan was presented for approval. The operation of the project included a lot of people writing the proposal, organizing the activities, doing the administrative work required to have everything in order, and incorporating students interested in participating in this SEL experience and thus achieving their social service requirement.

Students played an important role in managing the communication part of the project. Teachers provided support if needed. Students and teachers from the UAM had a stay in Uruguay in summer 2015. Instead of concentrating the activities in Montevideo, most of them took place in Artigas, a city with a population of 70,000 habitants. People from Montevideo travelled to Artigas to participate.



The activities were open to the community, so craftsmen and citizens were part of it too. It was a period of intensive work, SEL and cultural exchange. A survey was conducted to assess the perceptions of participants and the results were very positive.

After the intervention in Uruguay, a group of teachers from Uruguay went to Mexico. Some workshops, seminars, conferences and meetings were organized. One of the most significant experiences was the workshop developed in Guadalajara. The Innovation and Design Promotion Council in Jalisco managed processing all the administrative permissions required to deploy the workshops with craftsmen in the Design and Craft Innovation Centre, located in the municipality of Tlaquepaque. Craftsmen applied their knowledge and added some design concepts to create new concepts of personal accessories which will later become on products for sale. New students from the UAM enrolled in the social service plan to support the project.

The possibility to exchange knowledge between designers and craftsmen was very enriching for both parties. For the UTU and UAM it also represented the opportunity to strengthen cooperation between both universities. The teachers experienced mobility, shared their knowledge, learnt from everyone involved, produced academic outputs, improved their teaching skills and, overall, they contributed to solving social challenges. Because of the good results disseminated in different events, there was an invitation to organize a workshop in la Habana.

Figure 4 here

## 4 FINDINGS

This paper has introduced the idea that social service practice in Mexico, understood as SEL, could be a medium for experiencing ROL. Firstly, the paper shortly presented the underlying concepts of ROL and SEL as a background to establish the relationship with the concept of social service. In the second section, the paper examined the social service perspective within the Mexican context. Furthermore, the practical nature of social service at the UAM, a public university, was also briefly reviewed. An example of a research project – provided to reflect how the social service embedded in this activity seems to be connected with the idea of ROL – was presented.

The outputs and outcomes of the above research project suggest that by embedding this kind of SEL experience in research projects, undergraduate students can become familiar with the natural process of research. Students – whether doing their social service or not – could apply their acquired knowledge to attending to an important part of a project: the communication aspects. Likewise, through active learning, all the participants learned more about design and collaboratively explored a problem in order to find solutions (new products).

From an institutional point of view, the experience also strengthened the capacity building of universities to connect with society, share their knowledge and learn from it.

## 5 CONCLUSIONS

Social service in Mexico is an important way of practicing social responsibility. ROL can be cultivated in multiple ways; social service could be an alternative way to achieve it.

To elaborate, this paper was an interesting exercise in thinking because there is a need to deepen the concepts of ROL and SEL and think how they can be applied together to improve the learning experience with a sense of social responsibility.

In order to explore this relationship between the above two concepts, social service practice in Mexico was considered. A recent research project was used as a scaffold to build some ideas on the subject. The perceived outputs and outcomes suggest a positive impact of social service in ROL.

Finally, this reflection was conducted in order to consider the need for more research in the future in order to know how the SEL paradigm is developed in other countries and if it is connected to research experiences. Good practices could be identified. Also, more evidence and more research efforts provided by different disciplines are needed.

## 6 REFERENCES

- Cano Castellanos, C. (2004). Reflexiones sobre el futuro del servicio social universitario. *Reencuentro* (40), 1-10.
- Ledesma, D., Mungaray, A., & Ocegueda, J. m. (2008). Retornos del servicios social universitario en microempresas marginadas de Mexico. *Revista de la Educación Superior* , XXXVII (147), 7-16.
- Center for key competences and research-oriented learning. (2006-2016). *What is research-oriented learning?* Recuperado el 16 de Agosto de 2016, de Europa-Universität Viadrina frankfurt (ODER): europa-uni.de
- Angulo Alvarez, C., Avila Sandoval, S., Cardenas Valdez, M., & Zepeda Tiburcio, M. (2006). *Diagnóstico del servicio social en la unidad Azcapotzalco*. Diagnóstico, Universidad Autónoma Metropolitana, Mexico.
- ANUIES. (17 de septiembre de 2012). *El servicio social en Mexico*. Recuperado el 12 de agosto de 2016, de 1er. Foro de la Red Nacional de Servicio Social: <http://www.dgose.unam.mx/ForoSS/sersocialmex.html>
- ANUIES. (1989). Programa nacional de la extensión de la cultura y los servicios. *Revista de la Educación Superior* , XVIII (18).
- Ferruzca Navarro, M. V., & Martinez Mota, A. (2016). Fortalecimiento institucional y cultural a través de la cooperación para el desarrollo: una experiencia académica en diseño e innovación. (E. R. Watanave, Ed.) *Taller Servicio 24 Horas* , 12 (23), 5–14.
- Ferruzca, M., & Martinez, A. (October de 2014). Diseño, tecnología e innovación: Intercambio UTU - UAM. *Project*. Mexico, Mexico, Mexico: Draft.
- Furco, A. (1994). Is Service-Learning Really Better Than Community Service? A Study of High School Service Program Outcomes. En *Service Learning, General* (págs. 23-50).
- García Ancira, C., Castillo Elizondo, J. A., & Salinas Reyna, I. M. (2016). Seguimiento al servicio social del estudiantado de ingeniería a través de la plataforma Nexus. *Revista Electrónica Educare* , 20 (2), 1-23.
- Navarrete Ramírez, A. M., Barrera Bustillo, M. E., & Martín Pavón, M. J. (2010). Evaluación de proyectos de servicio social en una universidad mexicana. *Magis. Revista Internacional de Investigación en Educación* , 2 (4), 371-381.
- Observatorio Mexicano de Responsabilidad Social Universitaria (OMERSU). (2014). *Programa Interdisciplinario para el desarrollo Sustentable de la Región de los Tuxtlas e Ixucán de los Reyes, Veracruz (PIDESTI)* . Recuperado el 14 de Agosto de 2016, de Observatorio Mexicano de Responsabilidad Social Universitaria: <http://omersu.org/wp-content/uploads/2014/12/Programa-Interdisciplinario-para-el-desarrollo-Sustentable-de-la-Regi%C3%B3n-de-los-Tuxtlas-e-Ixuc%C3%A1n-de-los-Reys-Veracruz-PIDESTI.pdf>

Observatorio Mexicano de Responsabilidad Social Universitaria. (2014). *Programa Interdisciplinario para el desarrollo Sustentable de la Región de los Tuxtlas e Ixucán de los Reyes, Veracruz (PIDESTI)*. Recuperado el 14 de Agosto de 2016, de Observatorio Mexicano de Responsabilidad Social Universitaria: <http://omersu.org/wp-content/uploads/2014/12/Programa-Interdisciplinario-para-el-desarrollo-Sustentable-de-la-Regi%C3%B3n-de-los-Tuxtlas-e-Ixuc%C3%A1n-de-los-Reys-Veracruz-PIDESTI.pdf>

Robles Barcena, M., Celis Barragan, M., Navarrete Garcia, C., Rossi, L., Gilardi Gonzalez, M., & Barragan Perez, B. (2012). *El servicio social*. Recuperado el 13 de agosto de 2016, de Plan de diez años para desarrollar el sistema educativo nacional: [http://www.planeducativonacional.unam.mx/CAP\\_09/Text/09\\_01a.html](http://www.planeducativonacional.unam.mx/CAP_09/Text/09_01a.html)

Ruhr-Universität Bochum. (2016). *Forschendes Lernen*. (I. F. Beratung, Productor) Recuperado el 16 de Agosto de 2016, de Lehre Laden. Downloadcenter für inspirierte Lehre: <https://dbs-lin.ruhr-uni-bochum.de/lehreladen/lehrformate-methoden/forschendes-lernen/>

Ruíz Méndez, M. d. (2011). Educación a distancia: una propuesta de estudios para alumnos que comienzan su servicio social. *Apertura* , 3 (1).

United Nations Educational, Scientific and Cultural Organization. (09 de Septiembre de 1998). *DECLARACION MUNDIAL SOBRE LA EDUCACION SUPERIOR EN EL SIGLO XXI: VISION Y ACCION Y MARCO DE ACCION PRIORITARIA PARA EL CAMBIO Y EL DESARROLLO DE LA EDUCACION SUPERIOR*. Recuperado el 12 de Agosto de 2016, de [http://www.unesco.org/education/educprog/wche/declaration\\_spa.htm](http://www.unesco.org/education/educprog/wche/declaration_spa.htm)

Universidad Autónoma Metropolitana. (2015). Legislación Universitaria. *Legal document* . Mexico: Universidad Autónoma Metropolitana.

Universidad Autónoma Metropolitana. (s.f.). *¿Por qué una nueva universidad?* Recuperado el 14 de Agosto de 2016, de Universidad Autónoma Metropolitana: <http://www.uam.mx/sah/pre-pa/tema01/indice-t01.html>